

WHAT IS CLAIMED IS:

## 1. An apparatus comprising:

- Sub B1
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- a first conductivity type junction formed between a first region of a first conductivity type and a second region of a second conductivity type;
  - a second conductivity type junction formed between the second region and a third region of the first conductivity type;
  - a third conductivity type junction formed between the third region and a fourth region of the second conductivity type, wherein the first, second and third conductivity type junctions are associated with a thyristor; and
  - a low voltage trigger control coupled to the second region and the third region to provide a thyristor triggering current at a voltage of less than 10 volts.

## 2. The apparatus of claim 1, further comprising:

- a first voltage reference node coupled to the first conductivity type junction;
- a second voltage reference node adapted to be isolated from the first voltage reference node during normal operating conditions, coupled to the fourth conductivity type junction to provide a current path between the first voltage reference node and the second voltage reference node during an electrostatic event.

## 3. The apparatus of claim 2, wherein the first voltage reference node and the second voltage reference node are ground nodes.

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4. The apparatus of claim 1, wherein a capacitance between the first region and the fourth region is less than 120 femtofarads.

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5. The apparatus of claim 4 having a conductance between the first region and the fourth region of greater than 0.5 mhos when in an on state during an electrostatic discharge event.

6. The apparatus of claim 1 having a conductance between the first region and the fourth region of greater than 0.5 mhos when in an on state during an electrostatic discharge event.

5 7. The apparatus of claim 1, wherein the low voltage trigger includes a zener diode.

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Sub 8  
5 8. The apparatus of claim 7, further comprising:

a first voltage reference node coupled to the first the first conductivity type junction;

a second voltage reference node adapted to be isolated from the first voltage reference

node during normal operating conditions, coupled to the fourth conductivity type

junction to provide a current path between the first voltage reference node and the

second voltage reference node during an electrostatic event.

9. The apparatus of claim 7, wherein the zener diode includes a fifth region of the first conductivity type formed at least partially overlying the third region, and the fifth region has a different amount of doping than the third region.

10. The apparatus of claim 9, wherein the zener diode further includes a sixth region of the second conductivity type formed overlying the fifth region and the second region

11. The apparatus of claim 1, wherein the low voltage trigger includes a field effect transistor.

12. The apparatus of claim 11, wherein the field effect transistor includes a first current node coupled to the second region, a second current node coupled to the fourth region, and a control node coupled to the second region.

13. The apparatus of claim 11, further comprising:

a first voltage reference node coupled to the first conductivity type junction; and

a second voltage reference node adapted to be isolated from the first voltage reference

node during normal operating conditions, coupled to the fourth conductivity type

junction to provide a current path between the first voltage reference node and the

second voltage reference node during an electrostatic event.

Sub 1 >  
14. The apparatus of claim 13, wherein the control node includes a gate structure formed over a portion of the third region.

15. The apparatus of claim 14, wherein the first node is connected to a fifth region of the second conductivity type formed overlying the second region and the third region.

5 16. The apparatus of claim 14, wherein the gate structure is formed over an area between the fifth region and the fourth region.

17. The apparatus of claim 1 wherein the apparatus is formed using a complimentary metal oxide semiconductor process.

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FOOTNOTES

Sub B1  
 5 18. A thyristor formed in an integrated data processing device, the thyristor comprising:  
 a first conductivity type junction formed between a first region of a first conductivity type  
 and a second region of a second conductivity type;  
 a second conductivity type junction formed between the second region and a third region  
 of the first conductivity type;  
 a third conductivity type junction formed between the third region and a fourth region of  
 the second conductivity type; and  
 an anode node connected to one or more regions including the first region, wherein each  
 of the one or more regions connected to the anode node are of a common  
 connectivity type. 50

10 19. The thyristor of claim 18 further comprising:

a low voltage trigger control portion coupled to the second region and the third region to  
 provide a thyristor triggering current at a voltage of less than 10 volts.

20. The thyristor of claim 18 formed using a complimentary metal oxide semiconductor process.

Sub B  
21. An apparatus comprising:

- a first voltage reference node to provide a first voltage reference;
- a second voltage reference node, adapted to be isolated from the first voltage reference node during normal operating conditions, to provide the first voltage reference;
- a thyristor coupled between the first voltage reference node and the second voltage reference node to provide a current path between the first voltage reference node and the second voltage reference node during an electrostatic event.

Sub A  
23. The apparatus of claim 21 further comprising:

- a first circuit connected to the first voltage reference node; and
- a second circuit connected to the second voltage reference node.

24. The apparatus of claim 23, wherein the first circuit is an analog circuit and the second circuit is a digital circuit.

25. The apparatus of claim 23, wherein the first circuit is a radio frequency analog circuit.

26. The apparatus of claim 24, wherein the second circuit is a digital circuit.

27. The apparatus of claim 25, wherein the second circuit is an analog circuit.

28. A method comprising the steps of:

- detecting a voltage difference between a first voltage reference node and a second voltage reference node to determine when an electrostatic discharge event is occurring;
- providing conductive path through a thyristor when the voltage difference is less than approximately 10 volts.

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B<sub>1</sub> →
29. The method of claim 28, wherein the first voltage reference node and the second voltage reference node are at a common potential during a normal mode of operation.

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B<sub>2</sub> →

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